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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,534	04/27/2006	Henry J. Knott	990029.00003	9594
26710 7590 12/27/2007 QUARLES & BRADY LLP 411 E. WISCONSIN AVENUE SUITE 2040 MILWAUKEE, WI 53202-4497			EXAMINER GARCIA, ERNESTO	
			ART UNIT 3679	PAPER NUMBER
			MAIL DATE 12/27/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/577,534

Applicant(s)

KNOTT, HENRY J.

Examiner

Ernesto Garcia

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2007 and 27 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/27/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election of Species

Applicant's election with traverse of species I, Figure 5, in the reply filed on October 3, 2007 is acknowledged. The traversal is on the grounds that the assessment of the prior art does not have "the bending stress induced by the joint being substantial inversely proportional to a bending stress induced in the plane of bending by a maximum application load that the fastener shank is subject" and that the prior art Figure 1B illustrates the shank of a fastener subjected to only an axial load. This is not found persuasive because the claimed invention is directed towards a joint in its assembled state. The limitation being argued is only present "when the fastener is assembled to the joint" as required by lines 3-4 and thus there's no requirement that the bending stress be present after the fastener is assembled. According to Figure 1B, the final bending stress is the same as that of Figure 2B since either one does not have any at the final phase. Note that in Figure 2B, the bending stress caused by stress 26 is counterbalanced with stress 28 thus there initial bending stress is cancelled out. The fact that the bolt in Figure 2B was stressed in two phases is irrelevant when the final stress is the same. Further, Figure 3 also teaches this concept since the figure contains an angled bolt seat. Further still, Figure 4 qualifies as prior art since the description of the figures on page 6, lines 1-2, refers to Figure 4 as "a typical prior art connecting rod bearing cap joint". Accordingly, applicant has admitted via that statement that Figure 4

is prior art; therefore, Figure 4 is not a separate species thus being three species as applicant alleges.

The requirement is still deemed proper and is therefore made FINAL.

Claims 3 and 5-7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 3, 2007.

Drawings

Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Based on the statement at page 6, lines 1-2, it refers to Figure 4 as "a typical prior art connecting rod bearing cap joint"; thus, Figure 4 is prior art.

The drawings are objected to because the reference characters have been poorly written and require replacement.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "12", "14", "16" has been respectively used to designate axial loads with a first magnitude (Figure 1A) and axial loads with a second magnitude.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "36" has been used to designate both a straight seat (Figures 3, 5, and 6) and a tapered seat (Figure 4).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "40" has been used to designate both a bore without a gap 48 (Figures 3, 4, and 6) and a bore with a gap 48 (Figure 5).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "10" has been used to designate both a straight bolt (Figures 1A-2B, 4, and 5) and a bent bolt (Figure 6).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "44" has been used to designate a connected body rod with a circular bore (Figures 3-4), a connected rod body with a gap (Figure 5), and a connected body rod with a threaded hole with an excess angle.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "42" has been used to designate a bearing cap without a flat seat (Figure 3), a bearing cap with a tapered seat (Figures 4), and a bearing cap

with a gap 48 (Figure 5), and another bearing cap with a hole 37 that appear straight versus angled as compared to Figures 3 and 4 (Figure 6).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "39" has been used to designate both a threaded hole that is angled (Figure 2-5) and a threaded bore that is excessively angled (Figure 6).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "11" has been used to designate both a straight shank (Figures 1A-2B, 4, and 5) and a shank that is bent (Figure 6).

Applicant should note that the same identical component or feature must have the same reference character.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "plane of bending" (claim 1, line 3) must be shown or the feature canceled from the claim. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended". If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:
the description of reference character 44 is inconsistent between paragraphs [028] and [031]. Appropriate correction is required.

Claim Objections

Claims 1 and 4 are objected to because of the following informalities:

regarding claim 1, the format of the Jepson claim is incorrect and should be --the improvement comprising" in line 1; and,

regarding claim 4, "them" in line 3 should be defined. Appropriate correction is required. For purposes of examining the instant invention, the examiner has assumed these corrections have been made.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 4, and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the metes and bounds of the claim cannot be determined because the claim seeks to define a feature functionally without reciting any structure necessary to carry out this function. In particular, it is unclear what structural features are supposed to be present in the joint between the two parts clamped by the fastener. Note that patentability of a claim is to be based on the structure thereof. How does the joint induce a bending stress? No structure has been set forth to enable this recited

function to occur and therefore the claim is structurally incomplete. This also applies to claim 2.

Regarding claim 4, it is unclear how a gap induces bending stresses in the shank of the fastener.

Regarding claim 8, the recitation "a connecting rod connecting a bearing cap to a rod portion of the connecting rod" makes unclear whether "the at least two parts" in claim 1, line 1 are the same components or other additional components. Further, claim 8 raises the issue of whether the combination or subcombination is being claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's admitted prior art.

Regarding claim 1, as best understood, the applicant discloses, in Figures 1B and 3, an improvement comprising a joint inducing a bending stress in a shank 11 of a fastener 10 [0004] in a plane of bending. The bending stress is substantially inversely proportional to a bending stress induced by a maximum application load (note that since the axis of the screw hole 39 is at an angle with respect tot the joint seat 36, the head of the screw will abut at an angle at one side and not the other).

Regarding claim 2, the bending stress is of a magnitude and direction.

Regarding claim 8, the joint is a connecting rod connecting a bearing cap to a rod portion of the connecting rod.

Claims 1, 2, 4, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by anticipated by Thomson et al., 6,309,135.

Regarding claim 1, as best understood, Thomson et al. disclose, in Figure 14B, an improvement comprising a joint inducing a bending stress in a shank **48b** of a fastener in a plane of bending. The bending stress is substantially inversely proportional to a bending stress induced by a maximum application load (note that a

gap will pivot at the bottom changing into Figure 14A, thus the bolt will bend upward thus creating the bending stress inversely proportional to a bending stress induced by a maximum application load).

Regarding claim 2, the bending stress is of a magnitude and direction.

Regarding claim 4, the joint has joint faces that face one another and are held together by the fastener. A portion of the joint faces defines an unsupported gap that induces the bending stress in the shank opposite in direction to the bending stress induced by the maximum application load.

Regarding claim 8, the joint is a connecting rod connecting a bearing cap to a rod portion of the connecting rod.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-7083. The examiner can normally be reached from 9:30AM-6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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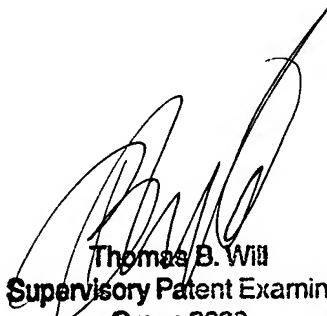
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

E.G.

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December 26, 2007


Thomas B. Will
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